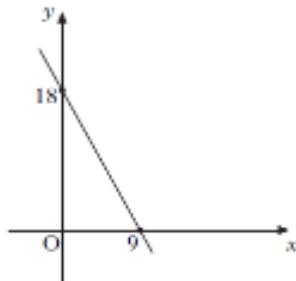


Practice Exam 2

1. A local council recycles 42 000 tonnes of waste a year.
The council aims to increase the amount of waste recycled by 8% each year.
How much waste does it expect to recycle in 3 years time?
Give your answer to **three significant figures**.

4 marks

2. A straight line cuts the x -axis at the point $(9, 0)$ and the y -axis at the point $(0, 18)$ as shown.



Find the equation of this line.

3 marks

3. The heights, in centimetres, of seven netball players are given below.

173 176 168 166 170 180 171

For this sample, calculate:

(a) the mean; 1 mark
(b) the standard deviation. 3 marks

Show clearly all your working.

4. Jamie works as a potter for a company which makes china ornaments. He earns a basic salary of £218 per week plus 80 pence for every ornament he makes.

Jamie saves $\frac{2}{5}$ of his gross pay every week.

One week he makes 40 ornaments.

Calculate how much Jamie saves that week.

3 marks

5. The table shown below is used to calculate loan repayments.

	60 months	48 months	24 months
	Monthly repayment (£)	Monthly repayment (£)	Monthly repayment (£)
With payment protection	£20 000	463.85	551.43
	£15 000	347.89	413.57
	£7 500	173.94	206.79
Without payment protection	£20 000	384.65	467.72
	£15 000	288.49	350.79
	£7 500	144.24	175.40

Samir wishes to borrow £15 000.

How much will the loan cost him if he repays it over 48 months, with payment protection?

3 marks

6. Anna earns £42 000 per year. She has tax allowances of £5425. The rates of tax applicable for the year are given in the table below.

Taxable income (£)	Rate
On the first £34 600	20%
On any income over £34 600	40%

How much is Anna's **monthly** tax bill?

5 marks

7. A cylindrical container has a volume of 3260 cubic centimetres. The radius of the cross section is 6.4 centimetres. Calculate the height of the cylinder.

3 marks



Question	Marking Scheme	Evidence
1.	ANS : 52900 tonnes <ul style="list-style-type: none"> • Know how to increase 8% • Know how to calculate amount • Calculate amount of waste • Round to 3 significant figures 	<ul style="list-style-type: none"> • 1.08 • 42000×1.08^3 • 52907.904 • 52900 <p style="text-align: right;">4 marks</p>
2.	ANS: $y = -2x + 18$ <ul style="list-style-type: none"> • Know how to calculate gradient • Know how to find y intercept • Equation of the line correct 	<ul style="list-style-type: none"> • $m = \frac{18-0}{0-9} = -\frac{18}{9} = -2$ • $c = 18$ • $y = -2x + 18$ <p style="text-align: right;">3 marks</p>
3. (a)	ANS :172 <ul style="list-style-type: none"> • Calculate the mean 	<ul style="list-style-type: none"> • 172 <p style="text-align: right;">1 mark</p>
(b)	ANS: 4.8cm <ul style="list-style-type: none"> • Calculate $(x - \bar{x})^2$ • Substitute into formula • Calculate standard deviation 	<ul style="list-style-type: none"> • 1, 16, 16, 36, 4, 64, 1 • $\sqrt{\frac{138}{6}}$ • 4.8 <p style="text-align: right;">3 marks</p>
4.	ANS: £100 <ul style="list-style-type: none"> • Know how to calculate gross pay • Know how to work out savings • All calculations correct 	<ul style="list-style-type: none"> • $218 + 40 \times 0.8 (=250)$ • $250 \div 5 \times 2$ • 100 <p style="text-align: right;">3 marks</p>
5.	ANS: £4851.36 <ul style="list-style-type: none"> • Interpret loan table • Calculate total repayment • Calculate cost of loan 	<ul style="list-style-type: none"> • 413.57 • 413.57×48 • $19851.36 - 15000$ • 4851.36 <p style="text-align: right;">3 marks</p>
6.	ANS: £642.50 <ul style="list-style-type: none"> • Know how to calculate taxable income • Know how to calculate lower rate of tax • Know how to calculate upper rate of tax • Know how to calculate monthly tax • Calculate monthly tax bill 	<ul style="list-style-type: none"> • $42000 - 5425$ • 34600×0.2 • $(36575 - 34600) \times 0.4$ • $(6920 + 790) \div 12$ • 642.50 <p style="text-align: right;">5 marks</p>
7.	ANS :25.3cm <ul style="list-style-type: none"> • Know how to find expression for volume of cylinder • Equate volume to 3260 • State value for h 	<ul style="list-style-type: none"> • $\pi \times 6.4^2 \times h$ • $\pi \times 6.4^2 \times h = 3260$ • 25.3 <p style="text-align: right;">3 marks</p>